



Green Infrastructure & Stormwater Management CASE STUDY

Parkhurst Park

Location: Arlington, VA

Client: Arlington County

Design Firm(s): Arlington County Department of Parks, Recreation and Cultural Resources

Landscape architect/Project contact: Christine Simpson, ASLA

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ASLA Chapter: Potomac



Project Specifications

Project Description: The mission for the Parkhurst Park renovation was to transform a hidden, minimally used open space and playground into a vibrant gathering place that effectively serves the community. Since the park is within the Chesapeake Bay watershed, stormwater management requirements were considered an opportunity to create an effective stormwater

management system that is also a playfully interactive and attractive design feature of the park. Drains beneath the play and sand areas collect rain water and release into an underground cistern. Park visitors can then pump the collected water to the surface by using a manual pump located near the school-age sand play area. The water from the pump, overflow from the cistern, runoff from the pavilion, and much of the stormwater draining across the park release into a vegetated swale that slows the water and allows it to percolate back into the ground. An underdrain and an overflow system allow excess water from the swale to slowly release into the park's existing stormwater drains during heavy storm events.

Project Type:

Open space - park

A retrofit of an existing property

Design features: Bioswale and cistern.

This project was designed to meet the following specific requirements or mandates:

State statute, county ordinance, developer/client preference

Impervious area managed: less than 5,000 sq/ft

Amount of existing green space/open space conserved or preserved for managing

stormwater on site: less than 5,000 sq/ft. While there is less than 5,000 sq/ft of new impervious surface in the park, numerous neighbors direct their sump pumps and roof drains into the park. Much of this drainage is not apparent on the surface but drains to the vegetated swale also.

The regulatory environment and regulator was supportive of the project.

Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements? The community valued the vegetated swale as an important element for educating their children about native plants and reducing pollution through stormwater management. They also valued the element of natural play that the cistern, pump and vegetated swale offers in contrast to the commercial play equipment.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$50,000-\$100,000 (Public funding: Local)

Was a green vs. grey cost analysis performed? No

Cost impact of conserving green/open space to the overall costs of the site

design/development project: By providing a cistern and pump for water play in the sand play area, the need for a backflow preventer and waterline to the area was eliminated. The vegetated swale took the place of drainage pits in play areas (to prevent engineered wood fiber

from running off) and lines from the play area to the stormwater system. Overall, there was a slight increase in initial costs.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Slightly increased. Initially, the stormwater management costs were slightly increased but the overall practices reduce long term maintenance costs of storm drain structures. Additionally, the community and the County views the long term benefit of reducing stormwater runoff as a necessary action to protect our streams and the Chesapeake Bay.

Number of jobs created: During construction, 6 jobs

Job hours devoted to project:

Planning and Design: Landscape Architects (2): 1,300 hours

Construction: Construction Manager: 800 hours

Annual Maintenance: Two person crew: 100 hours

Performance Measures

Stormwater reduction performance analysis:

The cistern holds 1,500 gallons of water runoff and overflows into the vegetated swale. Since the emptying of the cistern is largely dependent on how much children play with the pump (yes, it did run dry at times last summer) it is difficult to determine the reduction. The vegetated swale reduces stormwater runoff by 50% annually.

Community & economic benefits that have resulted from the project: The community is estatic about the newly renovated park and the play opportunities that it provides. Families travel past many other playgrounds to visit this park because of its natural play opportunities. The park is located next to a small neighborhood shopping area (Westover) that is walkable from the park and offers restaurants, an ice cream shop and other retail for residents that visit from further away.

Additional Information

Links to images:

<http://www.arlingtonva.us/Departments/ParksRecreation/scripts/planning/ParksRecreationScriptsPlanningOpen.aspx#parkhurst>

<http://www.arlingtonva.us/departments/parksrecreation/scripts/parks/ParkhurstPark.aspx>